



1 Wind energy is more expensive than conventional energy.

Wind energy is often cost competitive with conventional energy. In fact, when the Colorado Public Service Commission issued a ruling in 2001 on the 161-megawatt (MW) wind project in Lamar, Colorado, the commission determined that wind energy provided the lowest cost of any new generation resource submitted to an Xcel Energy solicitation bidding process (except for one small hydro plant). The commission also noted that unlike the other generation resources considered, the Lamar project avoided the risk of future increased fuel prices.¹ And in a recent landmark study of wind integration into the New York State electric power system, a 10% addition of wind generation (3,300 MW of wind in a 34,000-MW system) actually projected a reduction in payments by electricity customers of \$305 million in one year.² Although the wind's variability does increase the day-to-day and minute-to-minute operating costs of a utility system because the wind variations affect the operation of other plants, investigations by utility engineers show these costs to be relatively small—less than about 2 mills/kilowatt-hour (kWh) at penetrations under 5% and possibly rising to 5 mills at 20% penetration.



When the Colorado Public Service Commission issued a ruling in 2001 on the 161-MW wind project in Lamar, Colorado (pictured above), the commission determined that wind energy provided the lowest cost of any new generation resource submitted to an Xcel Energy solicitation bidding process (except for one small hydro plant).

2 Wind energy requires a production tax credit (PTC) to achieve these economics.

Every energy source receives significant federal subsidies. It is disingenuous to expect wind energy to compete in the marketplace without the incentives enjoyed by conventional energy technologies.³

3 The production tax credit and accelerated depreciation are helpful only to big, out-of-state developers. The economic benefits aren't local, and rural electric cooperatives and municipal utilities can't receive the same benefits.

Entities that pay federal taxes can use the tax credits to reduce their tax liability. If local entities assume equity positions in wind plants, then they can receive the tax credit benefits. Also, in some cases farmers have joined together in a cooperative arrangement to build and own wind plants. In aggregate, their tax liability can be sufficient to make full use of the tax credits.⁴ These tax credits result in lower wind energy costs for the benefit of all electricity customers.

Whether or not the wind-plant equity is locally held, wind plants result in jobs for the local community and the need for local services—both during construction and during operation. Additionally, the added county and state taxes and the landowner lease payments directly benefit the local and state economies. And to the extent that debt financing comes from local sources, debt-service payments stay within the local community.

4 Wind energy is unpredictable and must be “backed up” by conventional generation.

No power plant is 100% reliable. During a power plant outage—whether a conventional plant or a wind plant—backup is provided by the entire interconnected utility system. The system operating strategy strives to make best use of all elements of the overall system, taking into account the operating characteristics of each generating unit and planning for contingencies such as plant or transmission line outages. The utility system is also designed to accommodate load fluctuations, which occur continuously. This feature also facilitates accommodation of wind plant output



fluctuations. In Denmark, Northern Germany, and parts of Spain, wind supplies 20% to 40% of electric loads without sacrificing reliability. When wind is added to a utility system, no new backup is required to maintain system reliability.

5 If wind energy displaces energy from existing coal plants, then rates will go up. Rates for electricity from wind plants being installed today are comparable to wholesale electric power prices of 2.5¢ to 3.5¢/kWh. The incremental cost of wind power, if any, will be negligible when distributed among all customers. A number of studies have examined the rate impacts of wind and have considered the costs of various renewable portfolio standard percentages from 5% to 10%, and average residential bill impacts are predicted to range from a savings to a premium of 25¢/month. In the New York study mentioned above, wind displaced energy from both coal and natural gas plants. Rates decreased, and harmful emissions from the coal and gas plants were reduced as well.⁵

6 New natural gas power plants provide cheaper energy than wind plants. This is not likely with today's rising gas prices. At \$3/MBTU, the fuel cost alone is 2.5¢ to 3¢/kWh, and capital and O&M costs add a similar amount. Today, gas prices have risen to more than \$6/MBTU, yielding a fuel cost alone in the 5¢ to 6¢/kWh range. And gas prices have spiked to more than \$10/MBTU in past years. Betting on low gas prices over the foreseeable future is highly risky, while energy costs from wind plants will be relatively stable over time. In a recent study, Lawrence Berkeley National Laboratory found that the natural gas "hedge value" of wind could be conservatively estimated to be 0.5¢/kWh.^{6,7}

7 Large, utility-grade wind turbines can't be installed on the distribution grid without expensive upgrades and power-quality issues. In many cases wind generators can be connected to the distribution system in amounts up to about the rating of the nearest substation transformer. One study of a rural Midwestern county estimated that several tens of megawatts of turbines could be installed on the local distribution grid with a minimum of upgrade expense and minimal power-quality impacts. A number of single wind turbines and clusters of turbines are currently connected to the distribution system.⁸

8 Small projects that might be suitable for co-ops or small municipal utilities are not economical. Small projects generally have a higher cost per megawatt than larger wind plants, as would be expected. However, the incremental costs on customers' bills are likely to be small. The energy premium for a small project is unlikely to exceed 50%. If the project provides a small portion of the community's needs—say 2%—then the premium is reduced to about 1% if distributed among all customers. Some communities view this premium as a worthwhile investment to obtain local environmental benefits and experience with wind power.

9 Wind turbines kill birds and thus have serious

environmental impacts. Bird kills have caused serious scientific concern at only one location in the United States: Altamont Pass in California, one of the first areas in the country to experience significant wind development. Over the past decade, the wind community has learned that wind energy projects and wildlife can and do coexist successfully. Wind energy development's overall impact on bird mortality is extremely low (<1 of 30,000) compared to other human-related causes, such as buildings, communications towers, traffic, and house cats. Birds can fly into wind turbines, as they do with other tall structures. However, conventional fuels contribute to air and water pollution that can have far greater impact on wildlife and their habitat, as well as the environment and human health.

10 Wind turbines are noisy. Modern wind turbines produce very little noise. The turbine blades produce a whooshing sound as they encounter turbulence in the air, but this noise tends to be masked by the background noise of the blowing wind except for very near the turbine. An operating modern wind farm at a distance of 750 feet to 1000 feet is no more noisy than a modern kitchen refrigerator.

You can find more information on wind energy myths at www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/wpa/34600_misconceptions.pdf

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1 www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/xcel_wind_decision.pdf

2 www.nyserda.org/publications/wind_integration_report.pdf

3 For more on energy subsidies, visit www.earthtrack.net

4 Mark Bolinger, *A Survey of State Support for Community Wind Power Development* (<http://leetd.lbl.gov/ea/EMS/cases/>)

5 www.nyserda.org/publications/wind_integration_report.pdf

6 <http://leetd.lbl.gov/ea/ems/reports/56756.pdf>

7 Alan Greenspan, Federal Reserve Chairman, testimony at Senate committee hearing, July 10, 2003

8 Distributed Wind Power Assessment, National Wind Coordinating Committee, February 2001, available at www.nationalwind.org

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